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SUBJECT: Color Reproduction Systems Review

TASK/PROBLEM

1. In view of the recent importance attached to color photography by the intelligence community, investigate and determine the most suitable means to reproduce and utilize multiple copies of color materials. Determine the most suitable reproduction system and types of equipment to be used in all phases of the reproduction cycle. Also, attempt to define how color photography can best be utilized by the photo interpreter.

DISCUSSION

2. Two successful high altitude acquisitions (one each on 70mm and 9 1/2-inch format) on [] Special Color Film (Estar Thin Base), Type SO-121 resulted in preparation of duplicate materials suitable for demonstration. These materials are summarized as follows:

a. Full mission copies of the color original printed back onto Type SO-121 film as the duplicating medium.

b. Full mission black-and-white duplicate positives for comparison purposes made on [] Fine Grain Aerial Duplicating Film, Type 8430, using [] Panatomic-X Aerial Film, Type 4400 as an internegative.

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Declass Review by NGA.

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c. Stereo pairs using black-and-white, Type 8430 for one side and color, Type S0-121, for the other. Each side is 2 inches wide by 10 inches long.

d. 5X, 10X, and 20X enlargements from the 70mm mission were made. Enlargements were then made from the 9.5 inch mission to have the same equivalent ground scale as the 70mm mission. 5X duplicate negatives on [] [] Internegative Film were printed onto [] Print Film to produce these comparisons.

3. Currently, the best contact duplicates have been made from high altitude color acquisitions by additive contact printing the Type S0-121 color original back onto itself. The additive color printing improves the color saturation, image sharpness, scene contrast, and color separation.

4. The best enlarging technique to date was described in paragraph 2. (d) above.

5. Color separation printing for technique exploration indicated image sharpness was best as a green image, less sharp as a red image, and least sharp as a blue image. This was expected.

6. Some briefing aids in the form of charts have been prepared.

PLANNED ACTIVITIES

7. Finish preparation of briefing aids.
8. Test [] Color Film, Type S0-108 for lower contrast duplicates.
9. Determine feasibility of the continuous contact internegative technique for field enlarging needs.
10. Continue efforts utilizing other selected films as duplicating media.

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